

### REMARKS

Reconsideration of the issues raised in Paper No. 5, and reconsideration of this application courteously are solicited.

Paper No. 5 began with an objection to the title as not sufficiently descriptive. The title has been amended hereby in order to more specifically refer to the subject matter of the active claims. In view of this amendment, withdrawal of the objection is solicited.

Next, Paper No. 5 makes reference to Applicants' election of April 7, 2004. Examination of all of claims 1-9 has been appreciated. At this time, further comment is made in connection with Applicants' election. That is, claims 1-9 correspond to Figures 1-7 of this application. These claims do not correspond only to Figure 3, as may be taken from the paragraph bridging pages 1 and 2 of the Response To Species Election Requirement of April 7, 2004. In any event, it is understood that prosecution will continue with focus on all of active claims 1-9.

With regard to the active claims and alleged prior art, Applicants note the Examiner's indication of allowable subject matter in each of claims 6 and 7 with appreciation. It is acknowledged that these claims would be allowable if rewritten in independent form.

On the other hand, claims 1-5, 8 and 9 have been rejected under 35 U.S.C. §102(e) as purportedly anticipated by U.S. Patent 6,324,139 to Nakane. This rejection is traversed.

Claim 1 has been amended to more clearly demonstrate how the present invention patentably distinguishes over Nakane. As amended, claim 1 recites that the light converging means converges light to selectively position signal "marks" at "plural

positions" in the direction substantially perpendicular to the (disk) tracks. In order to appreciate this recitation of claim 1, reference will be made to Applicants' exemplary, preferred embodiments. In this regard, it perhaps is most convenient to look to Figure 4.

Figure 4 shows signal marks provided by a light converging means in accordance with claim 1. Signal mark 20CC is centered within a track. This is the conventional position for a signal mark. However, the light converging means of claim 1 does not cause production of only signal marks such as mark 20CC, but also produces signal marks that are deviated to the left and to the right of the center line of the track. Specifically, see signal mark 20LL and mark 20RR which are left-deviated and right-deviated respectively. It is this left or right deviation of the signal marks that claim 1 describes in requiring that the light converging means position signal marks at plural (different) positions along the direction substantially perpendicular to the track. That is, the light converging means positions marks left-of-center, on the center, and right-of-center as indicated by signal marks 20LL, 20CC and 20RR, respectively. Moreover, in Applicants' preferred embodiments, the light converging means is capable of positioning portions of signal marks either on-axis along the center line of the track, or off-axis as shown by any of signal marks 20LR, 20LC, 20CR, 20CL, 20RC, or 20RL. Further still, there is no requirement that the number of portions be limited to only two as demonstrated by the three-portion and four-portion signal marks 20LRL and 20RLRL, respectively.

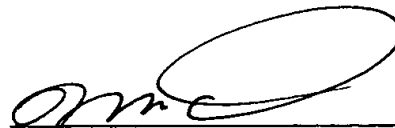
Nothing like Applicants' recited light converging means is taught or suggested to those of ordinary skill in the art by the Nakane patent. According to Applicants' understanding of Nakane, Nakane teaches generation of a small diameter condensing spot,

or a larger diameter condensing spot, in dependence upon a desired recording density. Specifically, Applicants understand Nakane as disclosing a small diameter condensing spot for a low recording density medium, and a large diameter condensing spot for a high recording density medium. Applicants note Nakane's modulation means 111, but understand this as for controlling the diameter of the condensing spot. No part of Nakane is understood as teaching or even suggesting a light converging arrangement which selectively positions signal marks at plural different positions along the direction substantially perpendicular to an optical disk track. For these reasons, it courteously is urged that the rejection for alleged anticipation over Nakane is overcome, and that this rejection should be withdrawn.

In view of the foregoing amendments and Remarks, it courteously is urged that all of the claims are allowable, and that this application now is in condition for allowance. Favorable action in this regard earnestly is solicited.

Respectfully submitted,

SMITH, GAMBRELL & RUSSELL, LLP



Michael A. Makuch, Reg. 32,263  
1850 M Street, NW – Suite 800  
Washington, DC 20036  
Telephone : 202/263-4300  
Facsimile : 202/263-4329

Date : July 22, 2004

## LISTING OF CLAIMS

1. (currently amended) An optical disk device comprising:

a light source which emits light; and

light converging means of, in each of signal mark forming regions, each of lands, or each of grooves of an optical disk, converging the light from said light source onto a signal surface of said optical disk ~~with to~~ selectively ~~positioning a~~ position signal ~~mark~~ marks at ~~any one of~~ plural positions ~~which are arranged~~ in a direction that is substantially perpendicular to tracks, each of said signal mark forming regions surrounded by adjacent two of boarder lines which are between two said tracks on the signal surface of said optical disk, and which are substantially parallel to said tracks, and each of which substantially divides an area between adjacent tracks in two parts.

2. (original) An optical disk device according to claim 1, wherein said light converging means has:

a converging lens which converts the light from said light source into substantially parallel light; and

light reflecting means of receiving the substantially parallel light which has been converted by said converging lens, and arbitrarily emitting said substantially parallel light so that the light which is to be converged onto said optical disk is converged onto said optical disk with being displaced by a predetermined degree in the direction that is substantially perpendicular to said track, or without being substantially displaced.

3. (original): An optical disk device according to claim 1 or 2, wherein said device further comprises controlling means of moving the light converged by said light converging means, at a predetermined speed in the direction that is substantially perpendicular to said track, and adjusting an amount of the light emitted by said light source, thereby erasing a signal mark which is already formed on said track.

4. (original): An optical disk device according to claim 1 or 2, wherein said device further comprises controlling means of unevenly moving the light converged by said light converging means, in the direction that is substantially perpendicular to said track, thereby producing a region in which a time period when the converged light exists is short, and a region in which a time period when the converged light exists is long, and adjusting an amount of the light emitted by said light source, thereby erasing a signal mark which is already formed on said track, and forming a new signal mark on said track.

5. (original): An optical disk device according to claim 2, wherein said light deflecting means is configured by: a crystal plate having an electrooptic effect; and electrodes which are formed in a predetermined symmetric pattern on a surface and a rear face of said crystal plate,

the substantially parallel light which has been converted by said converging lens is incident on a first side face of said crystal plate, transmitted through said crystal

plate, and emitted from a second side face of said crystal plate, said second side face being opposed to said first side face, and

the light emitted from said second side face is deflected on the basis of a level of a voltage which is applied between said electrodes.

6. (original): An optical disk device according to claim 5, wherein the light incident on said first side face of said crystal plate forms an angle of 20 deg. or more to a normal of said first side face, and/or

the light emitted from said second side face of said crystal plate forms an angle of 20 deg. or more to a normal of said second side face.

7. (original): An optical disk device according to claim 5, wherein the pattern in which said electrodes are formed is configured by two pairs of saw-tooth like patterns which are engaged with and insulated from each other,

voltages which are applied to adjacent electrodes of said two pairs of saw-tooth like patterns have opposite polarities, and

light which is transmitted said crystal plate is obliquely incident on a section of said crystal plate said section being substantially perpendicular to said surface and said rear face of said crystal plate including boundaries of said two pairs of saw-tooth like patterns.

8. (original): An optical disk device according to claims 1 or 2, wherein said light converging means performs the light convergence so that, as said signal mark is shorter, a degree of deviating a beginning and an end of said signal mark, and/or a portion between the beginning and the end of said signal mark, from said track is larger.

9. (original): An optical disk device according to claims 1 or 2, wherein said light converging means performs the light convergence so that said signal mark is formed on said optical disk, by using a signal modulation system in which minimum continuation of bit information code 0 is 1.

10. – 22. (withdrawn)